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Department of Chemistry

Student Seminar Series

9:45 a.m. Tuesday, May 3, 2016 • 331 Smith Hall

Professor

Christopher Chang

Department of Chemistry &
Department of Molecular and Cell Biology, &
Howard Hughes Medical Institute
University of California, Berkeley

Imaging Transition Metal Signaling in the Brain and Beyond

Website:

<http://chemistry.berkeley.edu/faculty/chem/chris-chang>

Abstract

The exploration of the brain and its distinctive role in forming the center of consciousness offers a grand challenge for achieving a molecular-level understanding of its unique functions, including learning and memory, as well as senses like sight, smell, and taste. As such, the brain also represents a frontier for developing new therapeutics for aging, stroke, and neurodegenerative diseases. We are developing molecular imaging approaches as a way to identify and study the underlying chemistry that governs brain activity. This talk will present our latest results in the discovery and understanding of transition metals as bonafide signaling elements and their influence on neural circuitry as well as expansion of this concept of transition metal signaling to other biological systems.

Christopher J. Chang is the Class of 1942 Chair Professor of Chemistry and Molecular and Cell Biology and HHMI Investigator at UC Berkeley, as well as a Faculty Scientist in the Chemical Sciences Division of Lawrence Berkeley National Laboratory.



He was born in Ames, IA and received his B.S. and M.S. degrees from Caltech in 1997, working with Professor Harry Gray on spectroscopy of high-valent metal-nitrido and metal-oxo complexes. After spending a year as a Fulbright scholar in Strasbourg, France with Dr. Jean-Pierre Sauvage on chemical topology and molecular machines,

Chang received his Ph.D. from MIT in 2002 under the supervision of Professor Dan Nocera, where his graduate work focused on proton-electron transfer and oxygen catalysis. He stayed at MIT as a post-doctoral fellow with Professor Steve Lippard, working on zinc biology and then began his independent career at UC Berkeley in 2004. Research in the Chang lab is focused on chemical biology and inorganic chemistry, with particular interests in molecular imaging and catalysis applied to neuroscience, metabolic diseases, and sustainable energy.

His group's research has been honored by awards from the Dreyfus, Beckman, Sloan, and Packard Foundations, Amgen, Astra Zeneca, and Novartis, AFAR, Technology Review, ACS (Cope Scholar, Eli Lilly Award in Biological Chemistry), RSC (Transition Metal Chemistry), and the Society for Biological Inorganic Chemistry, and in 2013, he was awarded the Noyce Prize at UC Berkeley for excellence in Undergraduate Teaching. Most recently, Professor Chang received the 2013 ACS Nobel Laureate Signature Award in Graduate Education, 2013 Baekeland Prize, and the 2015 Blavatnik Award in Chemistry. He is a senior editor at *ACS Central Science*. More information on the Chang lab can be found at <http://www.cchem.berkeley.edu/cjcgpr/>.

Hosts:
Courtney Elwell & Nicole Gagnon